Amendments to the Claims

Please cancel claims 25-57, 61 and 63-78.

1. (Currently amended) An isolated polynucleotide molecule encoding a polypeptide comprising ~~all or a portion of~~ a biologically active human KCNQ5 protein.

2. (Original) The polynucleotide molecule according to claim 1, wherein the human KCNQ5 protein comprises the amino acid sequence set forth in SEQ ID NO:2.

3. (Currently amended) The polynucleotide molecule according to claim 1, wherein the molecule is selected from the group consisting of (a) ~~all or a portion of~~ a nucleic acid sequence set forth in SEQ ID NO:1; (b) the complement of (a); and (c) variation of (a) due to degeneracy in the genetic code.

4. (Original) A vector comprising the polynucleotide molecule according to claim 1.

5. (Original) A vector comprising the polynucleotide molecule according to claim 2.

6. (Original) A vector comprising the polynucleotide molecule according to claim 3.

7. (Original) A host cell comprising the vector according to claim 4.

8. (Original) A host cell comprising the vector according to claim 5.

9. (Original) A host cell comprising the vector according to claim 6.

10. (Original) The host cell according to claim 7, wherein said cell is prokaryotic or eukaryotic.

11. (Original) The host cell according to claim 8, wherein said cell is prokaryotic or eukaryotic.

12. (Original) The host cell according to claim 9, wherein said cell is prokaryotic or eukaryotic.

13. (Currently amended) An isolated nucleic acid molecule having at least 80% sequence identity to the nucleotide sequence as shown in SEQ ID NO:1 and encoding a biologically active KCNQ5 polypeptide.

14. (Currently amended) An isolated nucleic acid molecule encoding a biologically active human KCNQ5 potassium channel, wherein said nucleic acid molecule hybridizes under ~~moderate stringency~~ conditions of 50% formamide, 5x Denhardt's solution, 5x SSPE or 5x SSC, 0.2% SDS at 42° C, followed by washing in 0.2x SSPE or 0.2x SSC and 0.2% SDS at a temperature of at least about 42° C to the complement of a nucleic acid encoding the amino acid sequence set forth in SEQ ID NO:2.

15. (Currently amended) An isolated nucleic acid molecule encoding a biologically active human KCNQ5 potassium channel polypeptide, wherein said nucleic acid molecule hybridizes under ~~high stringency~~ conditions of 50% formamide, 5x Denhardt's solution, 5x SSPE or 5x SSC, 0.2% SDS at 42° C followed by washing in 1x SSPE or 1x SSC and 0.1% SDS at a temperature of at least about 42° C to the complement of a nucleic acid encoding the amino acid sequence set forth in SEQ ID NO:2.

16. (Original) An isolated nucleic acid molecule encoding a human KCNQ5 potassium channel polypeptide and having a contiguous nucleotide sequence that encodes the amino acid sequence set forth in SEQ ID NO:2.

17. (Original) A vector comprising the nucleic acid molecule according to claim 13.

18. (Original) A vector comprising the nucleic acid molecule according to claim 14.

19. (Original) A vector comprising the nucleic acid molecule according to claim 15.

20. (Original) A vector comprising the nucleic acid molecule according to claim 16.

21. (Original) A cell comprising the vector according to claim 17.

22. (Original) A cell comprising the vector according to claim 18.

23. (Original) A cell comprising the vector according to claim 19.

24. (Original) A cell comprising the vector according to claim 20.

Claims 25-57 (Canceled)

58. (Original) An isolated polynucleotide molecule selected from the group consisting of an allelic variant, an alternative splice exon variant, and a chimeric fusion channel of the polypeptide encoded by the polynucleotide according to any of claims 1-3.

59. (Original) An isolated polynucleotide molecule selected from the group consisting of an allelic variant, an alternative splice exon variant, and a chimeric fusion channel of the polypeptide encoded by the nucleic acid molecule according to any of claims 13-16.

60. (Original) A vector according to any of claims 4-6 or 17-20, selected from the group consisting of viral, prokaryotic and eukaryotic vectors.

61. (Canceled)

62. (Original) An isolated nucleic acid molecule, wherein the sequence of said nucleic acid molecule is identical to the sequence in ATCC Deposit No. PTA-1924 (human KCNQ5).

Claims 63-78 (Canceled)